

ClimateWatch Editorial Meeting & Storytelling Workshop

NOAA Science Center, Silver Spring, Maryland
June 1-2, 2009

Summary Report

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Executive Summary

A growing body of anecdotal and quantifiable evidence indicates that **storytelling** is one of the most effective ways to convey important messages to audiences. Other research shows that interested citizens are increasingly going to **online sources** to find information about the causes and effects of climate variability and change. Combining these two ideas, NOAA held a workshop focused on communicating climate science through storytelling, and introduced participants to *ClimateWatch*, a developing online magazine where they can contribute climate stories for the science-attentive public. One hundred and one individuals participated in the workshop; attendees included communicators, data visualizers, and scientists from across NOAA and members of the informal science education community such as science museum personnel. Attendees learned about the structure and qualities of good stories and had an opportunity to write and share a story or outline. Attendees also worked to identify practical processes for contributing content to *ClimateWatch* and for extending that content to other media and venues.

A successful proposal to NOAA's Office of Communications 2009 Stakeholder Engagement Mini-Grant Opportunity provided funding for the meeting. Personnel from the Climate Program Office, NWS Climate Services, Geophysical Fluid Dynamics Laboratory, and International Research Institute collaborated to develop the proposal and plan the meeting. The \$25K award covered the costs of hiring the keynote speaker plus travel support for attendees who requested it.

Workshop Goals

The workshop had four main goals:

1. Instruct participants in how to identify and tell good climate science stories;
2. Share plans for establishment of NOAA's new, online magazine: *ClimateWatch* (one of four main sections planned for NOAA's Climate Services Portal), and invite active engagement in the editorial process and production of content;
3. Begin the process of identifying, prioritizing, and developing NOAA's climate sciences and services stories for publication in the magazine; and
4. Highlight the pathways by which NOAA's climate stories may be published in *ClimateWatch*, and extended to other venues and media.

Introduction

Official reports produced by federal climate research agencies each year provide ample evidence that Earth's climate conditions are changing. In order for the public-at-large to absorb this information, climate communications must move beyond trying to settle the "debate" about whether climate change is happening. Rather, communicators must help people understand the causes, impacts, and solution options, including strategies for mitigating global warming and adapting to new conditions.

To meet this need, NOAA is developing a Climate Services Portal that will make climate data and information more accessible to the science-attentive public. As part of the public rollout anticipated in late 2009, the Portal will feature an online “magazine” called *ClimateWatch*. The magazine will serve as an online source of accurate, understandable, visually compelling climate information featuring NOAA and its partners. This workshop facilitated the establishment of an agency-wide community of storytellers who will contribute to the site.

Project Leadership Team

Principal Investigator: Doug Kluck, Program Manager, NWS Climate Services

Key Partners: David Herring, Climate Program Office

Maria Setzer, Geophysical Fluid Dynamics Laboratory

Francesco Fiondella, International Research Institute

Event Summary

On June 1-2, 2009, 103 climate communicators and scientists gathered in the NOAA Science Center in Silver Spring to learn about storytelling and share ideas for the developing Climate Services Portal and *ClimateWatch* magazine. At the workshop, writers, data visualizers, designers, and production personnel began to map out a process for publishing a range of content that will illustrate NOAA’s connections with climate. The workshop laid the foundation for building virtual teams that will identify, solicit, produce, review, and publish content in the online magazine.

Representatives from science-technology centers, museums, and tribal communities also participated in the workshop. These individuals interacted with the group to share their ideas and needs for climate information, and to discuss ways that Portal content could be extended to other websites, exhibits, and products that promote public climate literacy.

On day one (scheduled as a half-day to accommodate travel), Chet Koblinsky welcomed participants and shared comments on NOAA’s aspirations and progress to date in establishing a national climate service. David Herring shared a status report on the developing Climate Portal and told the story of the development of NASA’s Earth Observatory, offering it as an example of a successful grassroots approach to building a successful virtual team that began in 1999. The group also learned about Communicating Climate Change (C3), an NSF-funded project administrated by the Association of Science-Technology Centers.

In the final session of the day, the group split into seven breakout groups with assigned facilitators to hold more focused discussions about how individuals might contribute to the magazine:

Group 1: Forging a Virtual ClimateWatch Editorial Team—David Herring

Group 2: Forging a Virtual ClimateWatch Visualizations Team—Ned Gardiner

Group 3: Community Climate Conversations—LuAnn Dahlman

- Group 4: A Climate Services Collaboratory—Kirk Bergstrom
- Group 5: New Social Media—Passing Fad or Important Component for ClimateWatch?—Frank Niepold
- Group 6: Adaptations for Societal Sectors—Dave Eslinger
- Group 7: ASTC’s Communicating Climate Change (C3)—Walter Staveloz

See **Appendix 1** for notes from these Breakout Groups.

The second day of the workshop featured Andy Goodman, a nationally recognized storyteller, author, speaker, and consultant in the field of public interest communications. Goodman told “the story of story,” providing inspiration and simple steps to help participants improve their ability to tell NOAA’s climate science and services stories—both in writing and in public presentations.

Goodman urged communicators in the audience to abandon the “inverted pyramid” style of writing that is commonly used in journalism, and to replace it with powerful narrative. A good story, Goodman said, requires a central character who has a goal in mind. An “inciting incident” throws the character’s world out of balance, and he or she must overcome various barriers until a resolution is reached. Stories are effective, Goodman said, because the audience begins to root for and sympathize with the character. When the story is over, the audience will be more likely to remember the message.

Day two also featured Dr. Dan Wildcat, a Yuchi member of the Muscogee Nation of Oklahoma, who shared inspiring stories passed down through generations of Native Americans. His talk was followed by an immersive virtual presentation projected onto a 9-foot “GeoDome” that took the audience through time and space to tell a story from the Lakota tribe. Ned Gardiner shared a presentation on best practices for enhancing stories with visualizations. Finally, the group split into the following small groups to consider story development.

- Group A: The Other Carbon Problem: Ocean Acidification—Caitlyn Kennedy
- Group B: Personal, National, and Global Carbon Accounting—Ned Gardiner
- Group C: Meningitis and Climatology—Francesco Fiondella
- Group D: Sea Level Rise: Local and Regional Variations—LuAnn Dahlman

See **Appendix 2** for notes from these sessions.

Lessons Learned

In preparing for the workshop, we anticipated that we would attract perhaps 30 or 40 participants to the event. We were pleasantly surprised to receive almost 100 registration forms! Before the event, we attributed the tremendous response to the draw of a well-respected speaker. After the event, we agreed that the large turnout reflected the fact that communicators across the agency are anxious to convey NOAA’s climate science and services stories to public audiences.

Having ready access to a convenient method for distributing electronic documents and communications after the workshop would have facilitated post workshop communication much better than the attachment-heavy email we distributed.

Logistical details involving meeting space, office supplies, travel, hotels, parking, and reimbursement are very time consuming. Organizers compiled a checklist of details and best practices to consult when organizing or hosting future meetings.

Machine-printed nametags with easy-to-see first and last names plus affiliations would have better facilitated personal meetings and group interactions than handwritten stickers.

Report-out sessions offer a way to bring concerns and plans from breakout groups to light in a plenary session, yet they need to be concise enough to keep the meeting interesting and on schedule. For future meetings, we may encourage facilitators/reporters to get participants' consensus on and report out a limited number of important points that have high value for the entire group. Following the brief plenary report outs, individuals would be encouraged to seek out reporters or members of other groups so they could follow-up on topics of interest.

Questions and responses from the post-workshop survey appear in **Appendix 3**.

Group 1: Forging a Virtual Editorial Team

Facilitator: David Herring

Sixteen people attended this session. Nine attendees perceived that the editorial tasks involved with producing *ClimateWatch* would dovetail with their existing roles and that they could envision themselves working as part of *ClimateWatch*'s core editorial team. Three other individuals expressed interest in contributing, but indicated they would need some funding support.

The group discussed the proposed **workflow model for content development, submission, and approval** (diagram included in *ClimateWatch* Style Guide). The aim of the review process is to balance accuracy with timeliness in developing and publishing stories. Once agreed upon, the group will submit their model to the Portal Governance Team with a recommendation for adoption.

The opportunity for writers to request **production of visuals** from *ClimateWatch*'s visualization team was seen as positive and necessary. Access to visuals production was seen as a major benefit of working with *ClimateWatch*. The group also discussed the **need to identify forthcoming papers** in time to facilitate story preparation and visuals production. The group agreed on the strategy of pursuing both a top-down and bottom-up approach to getting advance notice of NOAA-related scientific papers that will be published.

The group agreed to establish a **weekly, 30-minute telecon** for planning & collaboration. The weekly discussion will cover what's new, what's coming, and ideas the group might pursue to complement other contributors' work. The group identified key areas of mutual benefit for contributors and *ClimateWatch* as broadened and amplified exposure for centers' and labs' content, production of high-quality reusable visuals, and opportunities for extension to other Web sites and media via syndication. **Credit for contributions** was discussed as a major issue. The group agreed that every individual item in *ClimateWatch* must credit the originating source. This practice will provide traceability and the opportunity for linking to sources for readers who want to follow up

Next steps discussed by the group included the following:

- Initiate weekly editorial telecons to build editorial and visualizations teams
- Establish mechanisms for early identification of NOAA papers submitted to journals and a way to consider their newsworthiness & priority status
- Assign specific stories and development timelines
- Break out visuals development and production timelines
- Ramp up editorial teams and establish production flows through the summer with an eye toward September rollout readiness
- Populate *ClimateWatch* with samples of all content types being planned

Group 2: Forging a Virtual Visualizations Team

Facilitator: Ned Gardiner

This breakout group met to identify people in NOAA who might contribute to our collective ability to represent climate phenomena, services, and products using photography, original artwork, or rendered scientific information.

This group consisted of individuals from the Climate Prediction Center (CPC), the International Research Institute (IRI), the National Integrated Drought Information System (NIDIS), the Office of Atmospheric Research (OAR), NOAA's Earth System Research Lab (ESRL), and a museum/planetarium content development private entrepreneur from Science Communications Consultants.

Beth Russell spoke about the Science on a Sphere (SOS) program, housed at ESRL. SOS represents a core staff, a unique hardware and display platform, media assets, and, most importantly, a network of 36 sites where these hardware, media, and programming come together and offer visitors from all walks of life to view global data about climate and the Earth system, among other things. Those 36 sites are actively requesting visualizations about climate and training for docents to use those visualizations. The SOS staff and network can provide exposure to climate content and, to a limited extent, rendering capabilities for those who have imagery but little ability to generate sphere-ready media. Once visualizations are available, SOS staff members provide a catalog of media and scripts to explain the meaning underlying visualized information so that museums know how best to use those media assets. Images prepared for Science on a Sphere must be in a spherical coordinate system, optimally at a resolution of 2048 x 1024. A major priority among SOS staff is to provide good, quality-controlled training for staff of institutions that have SOS media. One mechanism for providing training to host institutions would be to videotape scientists who are speaking about their work; a video archive made from scientists' interpretations would provide invaluable professional development and training materials. Feedback between scientists and those who interpret scientific information publicly would benefit the SOS network as a whole. Employees of SOS host institutions increasingly include those with backgrounds in theater and storytelling.

Several staff from **ESRL** were identified as potentially high-value collaborators for the virtual visualization team: Steve Albers, who generates images from data and works 25% time with the SOS program; Jeff Smith, who works in computer game development, interactive displays about hurricanes, temperature and storm dynamics; and Eric Hackathorne, who has spearheaded NOAA's Second Life presence.

Jim Sweitzer mentioned that planetariums need content that puts Earth in a cosmic context. If provided with such media assets, planetariums are in a good position to bring science-attentive citizens into an awe-inspiring, immersive theater experience. These

theaters can reach 300 people at a time, or between 5 and 10 million people/year each. There are over 250 planetariums around the world. He mentioned that planetariums are actively experimenting with how to tell the Earth story, including a glaciologist at the University of Washington who is using globes in planetariums to good effect. Yet Earth data are not prevalent enough in planetarium-ready formats, nor are planetarium managers yet comfortable with presenting these data with meaningful narratives. This experimentation was at the heart of the Climate Program Office's immersive visualization experience at the Arizona Science Center in May 2009. Sweitzer mentioned that he has an opportunity with a paying planetarium client to develop Earth-centered and climate-centered content at the Hamburg planetarium. He hoped that a European audience would be more receptive than a U.S. one. Other stand-out institutions include Imiloa, Bishop, and Denver Museum of Natural Science. Next year's International Planetarium Society in Egypt could provide an opportunity to discuss Earth stories in a planetarium setting among professionals in a position to implement those ideas.

Mike Brewer spoke about how NIDIS addresses different audiences but assumes general proficiency with computer technology among its audience. He also mentioned that, while visualization would be a useful complement to the NIDIS effort, such work would indeed require funds which are very difficult to encumber for projects within NOAA. He discussed how imagery could be produced for regularly updated content for *ClimateWatch*; specifically, how imagery would be prepared for press releases when they come out. He pointed out that drought inherently provides a long timeline for preparing such materials and that it might be possible to identify local photographers to supply useful images for press releases.

Jason Rodriguez mentioned that the IRI climate risk knowledge directory is due to be released in September. It will include printed manuals about climate influences on fire, water, and agricultural issues. Their overseas distribution provides important international exposure for NOAA science, data, and services.

We discussed content management for *ClimateWatch*. A portal, such as NIDIS, can provide useful communications mechanisms such as a wiki, file management, a calendar, RSS feeds, and user-specified web-browsing experiences. A content management system should include a photography database. **Derek Parks** mentioned interest in guiding the setup of such a database and that he had experience with the metadata requirements (geolocation, time) as well as software that could be used to track information such as "mmts," NOAA's metadata climate keeper. All observations from climate records have to be consistent with the standards implemented by mmts. He also discussed the possibility of training others within NOAA in composition, formatting, image manipulation, and format requirements for different media.

Folks from CPC discussed their plans to redesign their web site and that they would share those design ideas broadly within NOAA. This initiated a discussion about map products and the need to generate static images as well as dynamic-capable formats

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such as WMS or WFS. Jason Symonds (not present) and Glen Reid (not present) have developed an open source map viewer for NIDIS that could prove useful in the context of ClimateWatch as well as the portal overall.

The group agreed that it would be useful to build a database of contacts for photography, writing, design, visualization, illustration, and scientific interpretation that spanned the various labs and offices throughout NOAA. There was broad consensus that decent training could be an important bridge among scientists and science interpreters, thus bolstering the SOS network and our overall objectives with *ClimateWatch*. Working with informal science institutions such as planetariums presents a challenge and an opportunity. Peoples' willingness to share ideas will be a great asset for *ClimateWatch*.

Group 3: Community Conversations on Climate

Facilitator: LuAnn Dahlman

Nine people joined this breakout group to discuss how the magazine can encourage public dialog about climate. The concept for including “Conversations” in *ClimateWatch* grew from a pilot event that brought local experts and members of the public together to discuss climate and water resources at Arizona Science Center. The group considered ways that such conversations might be captured and communicated to *ClimateWatch*’s audience. Additionally, the group considered how a Conversations section might utilize a video library of NOAA experts speaking about climate topics; videographer Patrick Grayson is willing to make many hours of such video available for our use.

Questions the group considered included the following:

- How can we bring conversations about climate out of the realm of talking about politics and religion?
- How might conversation events at science centers and other venues be extended to a virtual audience?
- What content might be harvested for the portal/magazine?
- Are talking-head videos appropriate for the magazine?

Some discussion took place on the perceived value of promoting dialog on *climate* rather than simply focusing on change. After all, observed changes in water resources, population, and land use are more concrete to the public, and conversations about these topics (which just happen to be impacted by climate) might get people to begin discussing solutions without having to work through the current contention involved with discussions of climate.

Members of the breakout group had relatively little value for video clips of talking heads. Rather, they envisioned using the Conversations section as a way to **encourage folks to share their own climate stories and their visions for the future**. As an example, Roy Campbell shared an intergenerational story from a family of fishermen who documented changes they’d seen in their local ecosystem. The group agreed they would have a high value for posting YouTube clips and/or submitted photos that gave folks’ on-the-ground views of climate and inspiring ideas for climate solutions. Some group members took this idea further, voicing support for using submitted stories in a competition for improving regional resilience.

If “talking head” videos are used in the Conversations section, the group agreed that clips should be available through a keyword search across all the video transcripts. For example, if a user wanted to know if observed climate change is just part of a natural cycle, searching on term natural cycle would bring up all of the clips that used

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those words. The group also expressed a high value for labeling each video with the specific question that the expert would answer and the duration of the clip.

A group member questioned: Is it NOAA's mandate to be stewards of climate data, or stewards of the systems that the data represent? **NOAA personnel in the group gave a strong message that they were in need of official guidance on where "advocacy" starts and stops.** They also wanted more information on what the approval process will look like for publishing content on *ClimateWatch*.

A range of other ideas were voiced in the group:

- As possible, cast all climate solutions as opportunities for innovation and economic success.
- Consider using backcasting from our preferred future state, envisioning and implementing what it will take to get there.
- Examples and ideas for engaging people:
 - Pbs.org video about archeology
 - Science Bulletin on Cleaning Up the Bronx
 - Use phone alerts and/or Twitter to broadcast new maximum temperature records
 - PolarPalooza as a model for ClimatePalooza
 - Pitch ideas to younger folks who are more likely to spend energy on action
 - Feature content similar to the Sea Turtle Race that is engaging and competitive on a daily basis
 - Post and allow discussion on innovations for adaptations
 - Feature science in the field
 - Add appropriate music and art clips

Group 4: A Climate Services Collaboratory

Facilitator: Kirk Bergstrom

Guiding Questions

- *What is a collaboratory?*
The group defined a collaboratory as a virtual space for sharing ideas and collaborating. Tools that might support a collaboratory include a Wiki, media libraries, calendars, forums, and blogs.
- *What is the purpose of the collaboratory?*
 - A clearinghouse of ideas to share resources and best practices
 - A tool to connect people and cross disciplines
 - A tool for prototyping and testing ideas and media products
- *Who is the audience?*
Should the collaboratory be open to the general public, focused on NOAA and its partners, or some hybrid of the two?
- *What moderation and/or facilitation is needed?*
Should the collaboratory have one or more moderators to facilitate inquiry and conversation?

Ideas for Collaboratory

- An interactive map to find experts and partners in your community
- A geobrowser to visualize and explore data
- A place to vet articles and conduct peer review
- A place to conduct focus groups and participate in iterative design cycles
- A place to post “best of” articles, URLs, and bibliographies
- A media-rich site that includes photos and video clips
- An exchange for teachers and educators to share learning activities and curriculum ideas
- A place for informal learning
- A place for short tutorials, such as “How to write science education articles”
- A place to share “best practices” and exemplar projects
- A tool to explore interdisciplinary connections
- An archive of slide shows/presentations
- A place to exhibit “Climate Art”

User Experience

- Easy to navigate and find information
- Like a website, enjoyable to explore with an inviting look and feel
- Includes opportunities to post comments and resources
- Maps to find resources
- Celebrates exemplars in stories, visuals and video

Group 5: New Social Media—Passing Fad or Important Component for ClimateWatch?

Facilitator: Frank Niepold

This breakout group contributed one overall recommendation plus a record of the points made and examples given during their discussion.

Recommendation: Invest human and financial resources in social media and manage its use to develop ClimateWatch and the Climate Portal as effective public interfaces for NOAA. This strategy is seen as having special importance given the activities of the current administration.

- Emily Crum: managing editor NOS website, which has shifted resources in the last year – new content online every day, including audio podcasts and RSS feeds (very successful) Repurposed content through social media tools. **Twitter** is successful as a way to broadcast new content on the site launched in November, now 5th most common referrer with 2200 followers including the White House. Very viral – a prominent follower like the White House attracts many more. Preparing to launch social bookmarking.
- SeaGrant recently chartered a climate change network – using **ning** – great response. Marketed to a 70-person listserv - Eight people have signed up for the site. Posting new funding opps, etc. Sea Grant group has signed up 100% of specialists and is now seeking to add partnerships. Ning is a more dynamic, two-way conversation as opposed to Twitter, which is one-sided.
- Admin resources are required and multiple levels of **user moderators are essential** for effective use of social media. Ask users who post content to make feedback public, to be sure it ends up in front of the people who can address it.
- Climate would be a good topic for **blogging**. EPA's Greenversations is a successful example. Policies are clearly posted, including disclaimer. Good way to seed conversations. NOAA climate scientists have a wealth of expertise – ask one scientist or facility to blog per week.
- How many scientists are effective communicators? **Translation** system to interface between scientists and public may be necessary. Scientists may need help with knowing who their audience is and how science-literate they are.
- How is information across various types of media tied together thematically? How are various sources tethered together in a comprehensible structure? Main content piece (ClimateWatch magazine content) is centerpoint, and various new media are spokes on the wheel. Moveable Type software does this automatically.
- Gulf of Mexico project – constructing StormSmart coasts website – back-end social network for Gulf of Mexico regional hazards/climate people from NOAA – scaling up to include broader SeaGrant hazards/climate community. This requires a back-end communication forum – not all dialogue is public, but selected content can be posted on the front end of the site. Public member posts question; experts debate

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behind-the-scenes; agreed-upon answer is posted. Enables multiple experts to communicate effectively.

- Collaborative tools show the path to conclusions. Wiki-style collaborative documentation - capture as many artifacts of the CMS-building process as possible. Cloud collaboration tools - allow remote experts to simultaneously collaborate on one version without bulking files.
- Susan Solomon is an example of someone who will not be inclined to capture her perspectives. The field is dynamic over time and content may change. When does information become public and when does it stay back-end? Tracking this process through collaborative media can enlighten the public to process.
- **Video** – Basic instructional video. Expert blogs. This enables **people** stories. Next-generation IPCC model development – document process with video. Caution: talking heads are boring. Be sure story is engaging. Make sure it's audience-appropriate.
- Use video to answer questions that are sent to the site – “ask a scientist.” The questioner has ownership and promotes it; NOAA gets a PR boost for responsiveness.
- Climate change could benefit from clear **personalities** – people relate to the people they know. Politicized issue. Faces to whom people can relate, and whom they can learn to trust. This is **social** media. Pay attention to format. Keep it short. Test efficacy.
- Technology is there for any communications. The question is how much to communicate? What if you get something wrong? Tension between responsiveness and accuracy. Social media can be corrected. Important to take the science really seriously. What about peer review process? What is the overall PR effect of scientists being wrong and correcting themselves?
- Healthy debate between scientists is part of scientific process and compelling content – may not be healthy for overall images – transparency might engage the public and get them excited.
- Expand the network of possible inputs to get better answers and crystallize information into discernible take-aways – to make clear what is important in a sea of data.
- In current state, how long would it take a stakeholder to get a question answered by NOAA? Is it even probable that they would get the question to NOAA? Post “answered questions” section with the ability to comment. This enables fine-tuned answers without flooded system.
- CSC recently launched a community forum. Most questions would be based around a short list of topics – answers could be structured beforehand. Tailor to different audiences (four identified groups): Twitter to scientists when you post new data; Twitter to public when you post new stories. Google Moderator – tool to choose which questions to answer.
- Which venues are most trusted and most used by each demographic? Signup process can include demographic profiling as well as signing up for various types of media.

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- “Stump the experts” game
- Capture and repurpose webinars, conferences, etc.
- Scheduled webchats – Q&A sessions at scheduled time. Archive these sessions. Start with a call for topics.
- Record audio podcasts with experts, but structure interview framework.
- Segment content architecture by user group – i.e., Climate for Engineers, for Educators, etc.
- It’s a goal for NOAA to be more responsive, more communicative, but not increase the workload on the science side.
- Technology is no longer a barrier but a tool, and these tools are relatively inexpensive.
- White House uses Twitter to elicit **feedback**. Must be equipped to deal with feedback.
- Is this a fad? If Twitter dies in 5 years, whatever replaces Twitter will redirect traffic to you. Established relationship will remain, whatever the method du jour. (Product cycle is about 5-7 years)
- How do we stay on top of this trend? CIOs who are able to stay flexible and creative. Social media is easy to use for the average non-technical person. It’s about maintaining a philosophy that is open and stays savvy.
- Trend in marketing – instead of blasting, you are personalizing and letting people choose to come to you.
- A benefit of Twitter is that follower is interested and has made active decision to follow the content.
- Viral component – “tell 10 people” model.
- No content strategy should rely exclusively on social media. Bulk of efforts go to populating site; 10 minutes for social media tools. Social media is a mechanism for getting the content out that shows clear return.
- Develop climate dashboard into a widget.
- Should we feature particular social media tools in the ClimateWatch section of the Portal? If so, which ones? And why?
- Who would we target? What would be our objective(s) in using a given social media tool to target them? Why would they be interested?
- Any social media presence would need a team of people to support it and keep it timely and engaging. How best could we forge such a team to ensure mutual benefit of all participants as well as a positive experience for our participating publics?

Group 6: Adaptations for Societal Sectors

Facilitator: Dave Eslinger

The topic for the breakout group was rephrased as “How do you find out what different sectors need from a Climate Portal?” A clear answer emerged: “You ask them!” The group pursued this line of thought and identified several main issues/approaches:

- 1) Approach sectors through the “greater NOAA,” and, specifically through the Regional Teams. These teams in general are dealing with specific issues of immediate concern, have local contacts and are, in many cases, already thinking about climate-related issues. They have probably dealt with (or heard about) some of the issues we are struggling with (e.g., What data do sectors need?, Why can’t they get it?, etc.) and will, hopefully, have some issues for us to tackle. Regional Integrated Science Assessments (RISA) groups and Regional Climate Centers should also be able to provide locally relevant climate needs and applications.
- 2) Another starting point for sector needs could be the NCDC Sector Fact sheets, currently in the final stages of development. These documents highlight the NCDC data used by some specific sectors and could be a framework on which the rest of NOAA could build. Note that other similar analyses have been done (NOAA’s Economics web site, USGS and EPA sites, etc.) These should also be checked to see what can be re-used or pointed to (we are a portal after all).
- 3) We (the Portal Team) need a mechanism/process to manage the information that comes in (i.e., to track the identified needs, identify relevant applications and data sets, etc.) and a method to manage the **expectations** of those submitting needs to us. We may want to have a form on the front page, which users could use to ask for data of a particular type, or to tell us of the questions that they are trying to solve. However, we wouldn’t be able to respond to all of these on a one-to-one basis. We may eventually be able to meet a wide variety of users’ requests, but that will require a mature system. Until then, we need to solicit input on what is needed but also be honest and forthcoming about what needs we can meet and within what time frame we can meet them. In summary: seek input, but manage expectations.
- 4) **Tagging** (i.e, associating keywords with problems, datasets, etc.) was identified as being critical to getting a useful Sector approach to our data and applications. In particular, it was recommended that we use a “folksonomy” approach whereby different sector users could tag data sets they use with their own key words. This would, through time, develop a robust set of focused keywords/tags for different data sets and would allow users to find out what other data was similarly tagged, what else was used by users of particular data set, etc.

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Delicious.com (especially the “tag cloud”) was cited as a good example of the type of functionality it would be nice to have: the more something was used by a group of sector users, the bigger its tags become. This was a pretty exciting idea for the group, but also raised issues about cookies, technology needed, etc. We (the portal team) should look into it.

5) Other interesting ideas that came up:

- a. Having a Climate Facts section on the front page similar to NOS’ Ocean Facts portlet: ~150 word answers to common questions, e.g., “What is the difference between a sea and an ocean?”
- b. Having a Climate Application contest. Get entrants to develop Climate applications using data available via the portal. Have a judged contest, award the winner something (honor, glory, something of nominal cost) and highlight the applications produced on the portal. The idea is NOT to compete with things like the SBIR, which promote commercial applications, but to aim at more open sharable applications.
- c. Use contracting/grant funding vehicles to “encourage” recipients to contribute. This would entail attaching special award Conditions to grants, cooperative agreements, and/or contracts to require recipients to put applications and/or data developed up on the portal.
- d. Create a geo-enabled interface like the Geo-Line of Business/GeoLOB. This was not fully explored in the time available.

Group 7: ASTC's Communicating Climate Change (C3)

Facilitator: Walter Staveloz

Workshop attendees from the C3 community used the breakout time to discuss matters specific to their efforts at museums and science centers. Much of the discussion centered on strategies for replicating some form of the Community Conversations on Climate pilot program that was held in Arizona. The group agreed that C3 plans for hosting Conversation events would need to be very flexible in order to accommodate the pronounced differences in size, demographics, and facilities available at potential venues.

The group also agreed that Community Climate Conversations should build on the hosting institution's existing programs and exhibits on climate, incorporating hands-on activities wherever possible so Conversation events are well-integrated with and enhanced by the science center experience.

The group identified the following ideas to include in future Conversation events:

- Host an extended electronic discussion that begins before the face-to-face conversation event and carries on after the event ends.
- Establish a strong partnership with local media to encourage widespread involvement of citizens.
- Use social media such as Twitter, texting, or cell phones to create new forms of dialogues and actions.
- Provide opportunities for participants to take action. Encourage organizers and participants to tap their creativity, to imagine, and to create opportunities for involvement and follow up.

Group A

The Other Carbon Problem: Ocean Acidification

Facilitator: Caitlyn Kennedy

Caitlyn Kennedy facilitated discussion on developing the story: “The Other Carbon Problem: Ocean Acidification.” Caitlyn was joined by three NOAA science communicators: George Cathcart of NOAA's National Estuarine Research Reserve System, Maria Setzer of the Geophysical Fluid Dynamics Laboratory, and Erica Rule of the Atlantic Oceanographic and Meteorological Laboratory.

The stories that will be featured in *ClimateWatch* are going to be about people in NOAA—their passion for their science and their sense of wonder and fascination about how the climate system works. Caitlyn started the discussion by asking the participants if they worked with any scientists at their respective laboratories or programs who were involved with ocean acidification or related research. By telling stories through the eyes of the scientists, we are better able to convey scientific information to non-scientists in a way that research shows provides context, improves understanding, prolongs remembrance, and enhances application of the new information. Identifying these scientists could provide some ideas for protagonists in a story about ocean acidification.

Erica mentioned coral scientist Derek Manzello who works at the Atlantic Oceanographic and Meteorological Laboratory. Manzello looked at corals off the Galapagos Islands that were living in a more acidic environment and noticed that the cement that buttresses coral reefs, giving them the strength to withstand crashing waves and other onslaughts, may stop forming as oceans acidify under increased carbon dioxide in the atmosphere. Erica said that Manzello has great photographs showing the underside of coral and its weak support structure.

Maria also has a researcher at the Geophysical Fluid Dynamics Laboratory that publishes on ocean acidification. Oceanographer Anand Gnanadesikan is interested in the vertical circulation of the ocean and the connections between physical circulations, the biosphere, and large-scale ocean chemistry.

Next, the group discussed ways to improve public understanding of ocean acidification through metaphors, analogies, and other aids that help an audience visualize a scientific concept. One idea that the group discussed involved comparing the struggle of calcifying organisms in an acidic environment to a person with osteoporosis who is more susceptible to breakages. Osteoporosis leads to abnormally porous bone that is more compressible (like a sponge) than dense (like a brick). The group agreed that this could be a strong comparison for coral growth and perhaps the growth of other marine calcifying organisms.

Erica explored another idea: Humans are changing the makeup of marine organisms' seawater environment by emitting carbon dioxide that is then taken up by the ocean. How would we feel if our atmosphere was altered? Say that something caused the ratio of oxygen to drop from 20% to 15-16%. The air might feel like we went up, say, 30,000 ft altitude. If your lung capacity was cut down to a fourth, imagine how much more vulnerable you would become. If you had an opportunity to make a change, would you do so? The numbers that

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Erica used were by no means exact but the story she suggested could be a provocative way to get humans to emotionally connect to the struggles of marine creatures.

The next discussion focused on the necessity of finding the human component to the story, the person who depends on a marine ecosystem and the organisms in it to provide an economic livelihood. The group agreed that it would be great to get the perspective of someone in the fishing community, a community that can't afford to bear the burdens of one more environmental stressor. They may not be witnessing the impacts of ocean acidification but are they aware of what the future might hold? What can they do? George suggested that another option might be to fast-forward to the future. A diver brings his daughter or son back to the coral reef he loved to visit when he was younger. Fifty years later, he dives below the water line and the beautiful ecosystem he remembers is a bare skeleton.

Visualizations for ocean acidification are important for the audience to understand this topic. The Environmental Visualization Lab renders animated graphs for ocean acidification that show the ocean over the next century changing color where acidification reaches a threshold level. The group discussed an idea for a data-independent visualization that shows how organisms use calcium carbonate to build shells, from tiny pteropods to clams and lobsters.

Photo ideas included those of pteropods and their weakened shell structures, and photos of marine organisms like crabs, mussels, lobster, and coral reefs, plants and animals we know and love that may be threatened in the future. George is an underwater photographer and so his expertise may be valuable for *ClimateWatch* in the future.

Existing resources for ocean acidification include a NOAA fact sheet and information on the Pacific Marine Environmental Laboratory's website.

At the end of the day, the group agreed to send each other anything they might find that relates to this topic. George sent out an article days after the workshop. Leon Geschwind from the Bishop Museum in Hawaii also expressed an interest to be involved in the development of this story as coral reefs are his museum's "climate indicator" in the ASTC C-3 program.

Group B

Personal, National, and Global Carbon Accounting

Facilitator: Ned Gardiner

A small group met to discuss a treatment for carbon. First, the group revisited the following story that Ned Gardiner presented in the plenary session with Andy Goodman.

"Here ya go. Five thousand dollars. We're square. I really appreciate the work. Thanks for everything," Drew calls as an F350 pickup truck spins gravel out of the driveway of his two story, 3Br/2Ba colonial home in Asheville NC. A five-gallon joint compound bucket with toolbelt and hand tools rumbles over the corrugated bed of the truck, slamming into the tailgate as the truck accelerates onto the residential street beyond. Drew is left to admire the handywork he had just paid to have completed to this home, built in 1927. His neighbors won't see much different, but Drew knows that the walls have R30 insulation, the windows have been caulked, roof ventilation has been installed. Someday, this family will recover this cost, even if it is years away, in energy savings in the house. But his real motivation is saving carbon emissions. These home improvements are going to reduce the amount of greenhouse gases my family contributes to the atmosphere, he reminds himself as he feels his wallet shriveling in his pocket.

Drew thinks deeply about carbon emissions. In fact, the calculus of carbons savings is his business. His non-profit consulting business, the Sustainability Institute, advises world leaders about policy initiatives they can undertake to reduce greenhouse gases on a global scale. One day while calculating global emissions implications of national and international policy scenarios, Drew realized he needed to start measuring how much carbon he and his family contribute to the big picture. He started tracking the carbon footprint of their home so that he could know what impact his own decisions have on the big picture he works on day in and day out.

Twelve months later, Drew skulked into the kitchen, reached into the fridge, and popped open a beer. Recognizing the signs and knowing that her systems engineering husband would not let go of whatever was bothering him until he had dealt with it, Sarah ventured, "What's up?"

"I just calculated our carbon emissions, and our house put out 12 tons of carbon dioxide last year. That's twice the amount of the average home in England, six times that of a home in Spain, and 20 times that of someone living in China. We're not doing enough." The local power and gas company, PNC Energy, had given Drew equations for figuring out his greenhouse gas contributions based on his energy bill, so he could track month by month the volume of gas emanating from his own home.

It took two more years of work to save about 30% of that 12 tons, and he invested more money in the process. More efficient heating ducts, a tune-up on the furnace, solar panels on the roof to replace electricity he was buying from coal-powered sources. One of the biggest contributions came from the whole family getting tough. Sarah, Drew, and their daughters went ninja, stealthily turning off lights they weren't using, replacing inefficient lighting and appliances. Simple, smart stuff.

Now Drew, Sarah, and the girls can see clearly what it's going to take to reduce emissions to a sustainable level around the world. They needed to be smart and plan ahead by redesigning their home to be efficient. They needed to get tough, committing to continually improving

Appendix 2: Story Development Groups

efficiency and conserving energy. But to make any progress at all, Drew needed a way to track how much carbon he and his family were putting into the atmosphere.

Making some simple and reasonable assumptions, Drew is tracking the amount of carbon his family contributes to the atmosphere. How would a state calculate its carbon footprint? A country? Tracking carbon is one of the major challenges facing the United States as it negotiates its position within the United Nations Framework on Climate Change. Some of the tools look a lot like what Drew did to calculate his family's carbon footprint, but others require new frontiers in science and engineering.

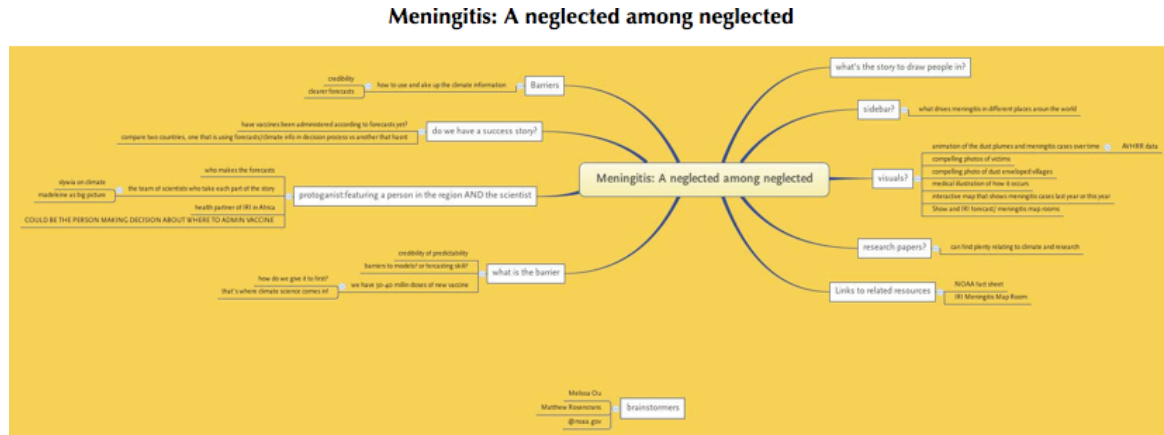
The breakout group also discussed resources, sidebars, and related articles that could be included with a story about carbon.

- A personal carbon calculator
- A graphical source-sink model of CO₂ evolution and accumulation in the atmosphere
- A paper by Pieter Tans and Melinda Marquis 2007 PNAS
- Forest Inventory and Analysis program of USDA Forest Service
- Visualizations of global net primary production
- What do flasks, towers, and airplanes have in common with respect to carbon tracking?
- What if everyone had your carbon footprint?

Several learning objectives seemed worthwhile for an article about carbon. First, accounting is difficult. ESRL is building CarbonTracker. How do they track carbon? Can people understand carbon displayed on a virtual globe? Under what circumstances is a ballpark estimate adequate? Should the U.S. government estimate? How rigorous does accounting need to be? The network of carbon flux towers, meteorological measurements, and photosynthesis measurements is very sparse. Is it sufficient? What contributes carbon to the atmosphere?

Group C
Meningitis: A neglected among neglected
Facilitator: Francesco Fiondella

This group produced a mindmap graphic to capture their brainstorming session on a story about connections between climate and meningitis. Because the graphic is too large for a single sheet of paper, a reduced version of it is provided here and the content outline is listed below.



1. what's the story to draw people in?
2. sidebar?
 - 2.1 what drives meningitis in different places around the world
3. visuals?
 - 3.1 animation of the dust plumes and meningitis cases over time
 - 3.1.1 AVHRR data
 - 3.2 compelling photos of victims
 - 3.3 compelling photo of dust enveloped villages
 - 3.4 medical illustration of how it occurs
 - 3.5 interactive map that shows meningitis cases last year or this year
 - 3.6 Show and IRI forecast/ meningitis map rooms
4. research papers?
 - 4.1 can find plenty relating to climate and research
5. Links to related resources
 - 5.1 NOAA fact sheet
 - 5.2 IRI Meningitis Map Room
6. Barriers
 - 6.1 how to use and make up the climate information
 - 6.1.1 credibility
 - 6.1.2 clearer forecasts
7. do we have a success story?
 - 7.1 have vaccines been administered according to forecasts yet?
 - 7.2 compare two countries, one that is using forecasts/climate info in decision process vs another that hasnt

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- 8. protagonist: featuring a person in the region AND the scientist
 - 8.1 who makes the forecasts
 - 8.2 the team of scientists who take each part of the story
 - 8.2.1 slywia on climate
 - 8.2.2 madeleine as big picture
 - 8.3 health partner of IRI in Africa
 - 8.4 COULD BE THE PERSON MAKING DECISION ABOUT WHERE TO ADMIN VACCINE
- 9. what is the barrier
 - 9.1 credibility of predictability
 - 9.2 barriers to models? or forecasting skill?
 - 9.3 we have 30-40 millin doses of new vaccine
 - 9.3.1 how do we give it to first?
 - 9.3.2 that's where climate science comes in!

A1. brainstormers

A1.1 Melissa Ou

A1.2 Matthew Rosencrans

Group D

Sea Level Rise: Local and Regional Variations

Facilitator: LuAnn Dahlman

A small group worked to brainstorm potential storylines and possible protagonists that might be appropriate for a story on Sea Level Rise (SLR). Notes provided here are a collection of place names and descriptions for SLR-related impacts or research.

Shishmaref, Alaska: Iconic location where homes are being lost to coastal erosion.

NOAA-related Before/After visualization software helps communities visualize expected changes of higher sea level or installation of adaptive infrastructure such as seawalls.

Potential Protagonists for SLR stories:

NERS researcher in Mercury Bay of south Florida: battling SLR to preserve million-year-old ecosystem.

3rd generation businessman faced with decision of closing up shop

Captain of barge on Great Lakes faced with changes that make it difficult to get cargo in and out

NASA Scatterometer Operator

Other story ideas:

Peat wetlands on Outer Banks may be releasing carbon as sea level rises. Albemarle, Pamlico Penn. (Rebecca Feldman)

Connect SLR to specific storm events and reduced marsh areas

Models of SLR available at NOAA Tides and Currents, SLOSH models

Storm Quicklook

Port designs and infrastructure issues

BCDC-California

The state of Washington has an effort underway to help county planners identify current mean high tide levels. They are offering training that will help planners to set better building zone boundaries. (Jason Chasse) Delaware is also grappling with what amount of SLR coastal communities should plan for. (R. Feldman)

NOAA has recently solicited proposals for on-the-ground restoration work along coasts. (Jessica Berrio)

Consider the difference between tidal predictions and actual records. Boaters are the target audience for these. Sailors for the sea. (Betsy Nicholson)

Are we aware of any saltwater intrusion into fresh groundwater occurring?

Infrastructure issues to explore:

Charleston, SC sewer system

Deer Island, Boston

Rookery Bay, Florida

Pacific islands

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Grand Bay, MS: 15 km transect established for documenting change. Bill Platt, LSU.

Digitops suggested as a keyword searchable resource for topics such as SLR.

North Carolina NERR partnership with CSCOR/Nat'l Center for Coastal Ocean Science studying ecological effects of SLR. They engage staff at reserves and universities on issues such as sediment transport, VDATUM wave model, and new inlets along NC's coast. (Carol Auer)

Coastal Storms/Living Shorelines project. Before and After photos (Jessica Berrio)

Consider issues of showing projected SLR on maps. These maps are actually highly generalized at the scale of individual homes. Consider how LIDAR DEMs might help settle questions about elevation. Consider how some communities that have received LIDAR data can't read them because they lack the appropriate software tools.

OVERALL RESULTS of the POST WORKSHOP SURVEY

Out of 103 attendees, 18 completed and submitted a survey sent out by email after the workshop. The response rate was 17%. Responses are displayed in blue text.

1. On a scale of 1 to 5, with **1 = poor** and **5 = excellent**, what rating would you give the workshop overall?

| | | |
|----|----------|------|
| 1: | | = 0 |
| 2: | | = 0 |
| 3: | III | = 3 |
| 4: | IIIIIIII | = 10 |
| 5: | IIII | = 5 |

2. How likely would you be to recommend this workshop experience to others?

| | | |
|---------------|----------|-----|
| Highly Likely | IIIIII | = 7 |
| Likely: | IIIIIIII | = 9 |
| Not Likely | II | = 2 |
| No Way | | = 0 |

Workshop Sessions

Day 1

- A. NASA's Earth Observatory as an example of building a virtual team, David Herring
- B. Communicating Climate Change (C3): An ASTC Initiative, Walter Staveloz
- C. NOAA Climate Portal Overview, David Herring
- D. Breakout group discussions

Day 2

- E. Report out from previous day's breakouts
 - F. Storytelling Presentation, Writing, and Sharing; Andy Goodman
 - G. Stories from Tribal Communities, Dan Wildcat
 - H. Domecast: Visualizing Precession, Jim Rock and Joel Halvorson
 - I. Enhancing Storytelling with Data Visualizations, Ned Gardiner
 - J. Brainstorming / Storyboarding breakout session
-

3. Which were the most interesting/valuable parts of the workshop for you?
(Note: Some respondents indicated more than one thing.)

| | | | |
|---|-----------------------------|--------------|------|
| A | NASA Earth Observatory | IIIIII | = 7 |
| B | ASTC C3 Program | III | = 3 |
| C | Climate Portal Overview | IIIIII | = 8 |
| D | Breakout Discussion | IIIIII | = 7 |
| E | Reports from Breakouts | | = 0 |
| F | Andy Goodman Presentation | IIIIIIIIIIII | = 17 |
| G | Stories from Tribal Comm. | IIII | = 5 |
| H | Domecast | | = 0 |
| I | Data Visualizations | | = 0 |
| J | Storyboarding/Brainstorming | I | = 1 |

4. Which portion(s) of the workshop did you consider least valuable? Why?
(Note: Some respondents indicated more than one thing.)

| | | | |
|---|-----------------------------|----------|------|
| A | NASA Earth Observatory | | = 0 |
| B | ASTC C3 Program | III | = 3 |
| C | Climate Portal Overview | | = 0 |
| D | Breakout Discussion | I | = 1 |
| E | Reports from Breakouts | I | = 1 |
| F | Andy Goodman Presentation | I | = 1 |
| G | Stories from Tribal Comm. | III | = 3 |
| H | Domecast | IIIIIIII | = 10 |
| I | Data Visualizations | IIII | = 5 |
| J | Storyboarding/Brainstorming | I | = 1 |
| | None (all were valuable) | II | = 2 |

Comments about particular sessions:

B – No clear explanation of how ASTC relates to NOAA or why ASTC was presenting. Same is true for other contractors.

B – C3 presentation did not tie directly into the program goals and was not integrated well in terms of objectives

B – Too much spiritualism in expressing a story or image.

E – Too much time with too little interest for the entire group.

D – The breakout session I attended could have been a bit more focused.

F – I was thoroughly entertained with his presentation and discussion, but I disagree with his recommended approach for NOAA. I don't like the idea of every story having a protagonist, goal, barriers to overcome, resolution, etc. If the goal is to attract a wide variety of readers, there ought to be a variety of approaches.

G – I missed the very end of the workshop, but I had the sense that there was not too much of interest after Dan Wildcat finished.

G - While Dan Wildcat's stories were interesting, I wasn't sure how they fit in with the agenda for the Workshop. Maybe more context as to why he was presenting would have been helpful.

G - Didn't find the stories particularly interesting or well-told.

H - Would have liked to hear more information about the technology; didn't find the stories interesting (I've heard about the Mayans and 2012 way too much this year).

H - Didn't see how this fit with the rest of the workshop.

H - Although the Domecast was interesting and visually stimulating I didn't quite understand how we could use that type of technology.

H - The visualizing had a glitch, but I bet it could have been really great!

H - I think the Domecast should have been done differently. I thought that there would be a discussion on how the Dome can be used, showing examples on the Dome - not getting a lesson for high school Minnesota students. I was a little confused on what they were presenting and how it related to climate.

H/I - Confusing, frustrating, with no context given. Lost momentum from Goodman's presentation. How does an inflatable dome relate to a climate science web site?? Where were the voices of NOAA weather and climate experts?

H/I - I thought the remote presentation did not work smoothly and I was unsure of how it connected to the theme of the workshop. I also felt that there would be some insight on how to effectively communicate through graphics.

H/I - Although it was interesting, I was not clear on how this fit into the objectives of the overall workshop, I didn't understand why [the presenter] would not just tell people the technology of the dome. It was the "elephant in the room". The data visualizations portion directly conflicted with (i.e. don't use rainbow pallet) the presentation right before it.

H/I - They were poorly organized and ironically didn't really hit the mark when it came to using the tools they were promoting to convey information. They both seemed to miss connecting the dots on how communications professionals - who are reaching out to a variety of audiences - could use the technology and visualizations to enhance the story rather than bog it down with useless or confusing information.

H/I - These were interesting but a little scattered and carried on a little long after a long day of sitting.

J - Task was too ambitious for the last item on a packed agenda.

5. What would have made the workshop more useful?

- Perhaps spending more time fleshing out an actual example of a story and presenting it in finished, ready-to-publish on ClimateWatch form.
- A third day, with intensive, serious story development for, say, 4 topics. Some people could frame out visuals, while others the narrative, and still others could feed data/stats. These would evolve into the first features in ClimateWatch.
- A more brief intro that was a little more concrete - I know that this is all in development, but I remain confused about the types of stories CW will feature, how important it will be for NOAA to be a part of the story, etc.

- More time for questions and discussion after each session. I thought the few questions we heard were very interesting.
- Less focus on NASA, more focus on NOAA and the Climate Program Office and what we can do here at NOAA with visualizations, music, film, animation, given the resources we have. Would have loved to hear about David's first year in NOAA's Climate Program Office, for example.
- More time for questions and discussion after each session. I thought the few questions we heard were very interesting.
- More storytellers about Earth science. Good current role models for what we're trying to do would be great. Many excellent science pieces in print and broadcast use story-telling devices.
- I was unsure of exactly what the goals of the workshop were (to work on the portal? storytelling skills? NOAA collaboration?)
- More science-based stories from Andy Goodman. His examples were mostly from non-profit organizations – I don't recall any that were related to communicating science.
- I thought Andy had a lot of good things to say about storytelling. I hope that NOAA creates an avenue for story telling to be published. Right now, there is an avenue for journalistic reporting so I thought that a best practices tutorial for journalism should have been included in the workshop. It's likely not just about storytelling.
- Picking several break out discussions and rotating to have multiple discussion, my facilitator really didn't know what a "collaboratory" was and I thought it was something different when I signed up. Clear reiteration of the overall goal of the workshop and how each piece fits in. I got a little confused/thought it was going off track after the story telling.
- I thought it was the right length, a good mix of topics and interaction. If you're looking for ideas for a future workshop, it might be fun to have a scientist or 2 to talk about how it's hard for them to put things into non-science terms. Could even have a fun game between them a few communicators, where they try to translate science into more lay friendly terms.
- The most fruitful times in these workshops are the breakout sessions and time to interact with other attendees. I would build more interactive time into the schedule.
- Not sure. Maybe allowing people to rotate into different focus groups initially to get a broader perspective.
- Maybe more time for other professionals in the room to discuss how they tackle similar communications problems in their everyday regimens. Specific examples of what the climate portal content needs are. I understand this was a kind of feeling out workshop, but I think more direction on what is needed to get started would have helped.
- Handing out PowerPoint copies in advance to take notes on.

- Context and explanation for the various segments of the workshop. A presentation by NWS or NCDC scientists explaining information products needed would have been helpful. Workshop should have been for NOAA employees only.
- Having more participation from other agencies and stakeholders.
- More time on the first day working through Portal ideas and discussions.

6. What questions do you still have regarding *ClimateWatch*?

- What will be the balance of stories vs. overview articles? We need to communicate to contributors how different content types will be used and how often.
- Because IRI has essentially 1.5 people directly involved in communication (my time and part of Jason's time) I am having trouble imagining an efficient workflow that will not overwhelm (with regard to deadline and resources) our relatively small operation here.
- How important is it that NOAA is in the stories? My instinct is that we should be highlighting NOAA's research and contributions.
- I am wondering how the museum field and C3 project will use ClimateWatch in the future, but this is something that will be continuously addressed as development continues.
- I heard that it was and was not going to be a place that produces content. This is still confusing to me. Will the website simply point people to other information sources or will there be content generated at Climate Watch.
- Will there be monthly reminders that go out to all NOAA employees, i.e. a new Climate Watch is up, or will it be constantly changing?
- Who is our best contact for submitting stories? Will there be a way to stay up to date on content needs?
- What will the editorial process look like? If someone in NOS wants to contribute a story, what would be the first step?
- Funding and staffing, as usual.
- I'm eager to see it take shape, to see how the execution matches (or doesn't match) the vision we heard during the presentations.
- Range of stories seems broad and without limitation—how will stories be selected? Who is the audience for the stories?
- What is its message, mission, agenda?
- What graphic elements and style will set the site apart from Earth Observatory?

7. Do you envision yourself contributing articles or other content for publication in *ClimateWatch*?

Yes ||||| = 18
No = 0

If yes, which types of content?

(Note: Some respondents indicated more than one thing.)

*M means “maybe.”

| | | |
|-------------------------|-------|--------------|
| Stories | | = 16 |
| Press Releases | | = 7 |
| Overview Articles | | = 10 |
| Fact Sheets | | = 9 |
| Case Study | | = 11 |
| Images with Captions | | = 13 |
| Blogs | M, M, | = 3, 2 Maybe |
| Interviews | | = 12 |
| Visualization resources | M | = 5, 1 Maybe |

Comment: Audio slideshows too!

General comments:

- I thought it was an outstanding and highly valuable day and a half, one of the best I’ve been to. I’ve been talking it up to my colleagues. Thanks again for getting this together, thinking it out so well, connecting all the people. It was top notch.
- I have no recommendations. It was a very effective use of time.
- Overall I found the workshop to be very valuable. It was invigorating to be reminded of the strength of the narrative form. I was able to match faces to names within different programs. I was also able to feel like part of a larger network with a common goal, which is nice. I’m excited about the possibilities related to the portal.
- Loved the workshop. Thanks again for all your work putting it together and reaching out to those of us outside DC.
- Some of the discussions/topics were more applicable to NOAA employees than to the museum field.
- Compliments to all on a very successful first shot at pulling this together!